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September 3, 2003

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS**

MARIA DAVILA and ALBERTO DAVILA,
administrators of the estate of
ALBERTO DAVILA, JR., deceased,
and MARIA DAVILA and ALBERTO DAVILA,
individually,

Plaintiffs,

v.

USF HOLLAND, INC., a Michigan corporation,
and THOMAS C. KLATT, SR.,

Defendants.

And

GLORIA MANDUJANO, as Special
Administrator of the Estate of ENRIQUE
MANDUJANO, Deceased,

Plaintiff,

v.

THOMAS C. KLATT, SR., individually and as
an agent of USF HOLLAND, INC., a
Michigan Corporation,

Defendants/Third-Party Plaintiffs,

v.

Maria Davila, Special Administrator of the Estate
of Alberto Davila, Jr.,

Third-Party Defendant.

No. 02 C 7021

FILED

SEP 08 2003

Judge Blanche M. Manning
United States District Court

Judge Manning
Magistrate Judge Schenkier

DOCKETED

SEP 11 2003

Motion No. 31

**DAVILA PLAINTIFFS' MOTION IN LIMINE TO BAR
TESTIMONY OF DR. MARTIN MOORE-EDE**



I. Introduction

Defendants retained Dr. Martin Moore-Ede to opine regarding the level of alertness of the two drivers involved in this collision. Based on secret testing, assumptions and irrelevant statistics, he concludes that Alberto Davila was very tired at the time of the collision whereas truck driver Thomas Klatt was wide awake and very alert. For the numerous reasons set forth below, Dr. Moore-Ede should be barred as a witness in this case. In the alternative, Plaintiffs request that this Court consider separately the issues raised below and exclude those opinions as the Court deems appropriate.

II. Daubert Analysis

“Under Daubert, the district court is to perform a gate-keeping function and conduct a two-step analysis before admitting expert scientific testimony under Rule 702. First, the court must determine whether the expert’s testimony reflects scientific knowledge; that is, the court must make a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid.” Chapman v. Maytag Corp., 297 F.3d 682 (7th Cir. 2002), citing Daubert v. Merrel Dow Pharmaceuticals, Inc., 509 U.S. 579 at 592-93. “The second part of the Daubert analysis requires the district court to determine whether the evidence or testimony assists the trier of fact in understanding the evidence or in determining a fact in issue.” Id. The focus of a court’s inquiry must be solely on principles and methodology, not on the conclusions they generate. Cummins v. Lyle Indus., 93 F.3d 362, 368 (7th Cir. 1996). Daubert sets forth a nonexclusive list of factors or guideposts that a court should consider for this analysis: 1) whether the theory can be and has been verified by the scientific method through testing; 2) whether the theory has been subjected to peer review; 3) the known or potential rate of error; and

4) the general acceptance of the theory in the scientific community. Id.

III. Motion To Bar Testimony Or Portions Thereof By Dr. Martin Moore-Ede

A. Dr. Moore-Ede's Circadian Alertness Simulator (CAS)

Dr. Moore-Ede has created a mathematical model called the Circadian Alertness Simulator ("CAS") to allegedly predict when someone is at risk for falling asleep. Under Daubert, this Court should bar Dr. Moore-Ede from testifying based on his CAS because the methodology behind his CAS formula is not scientifically valid. Moreover, the jury does not need a \$650 an hour expert (who has been paid more than \$56,000 to date) to tell them that Alberto Davila and Thomas Klatt, Sr. might have been tired at 4:45 a.m. on a Saturday morning.

Dr. Moore-Ede's CAS mathematical formula also does not pass muster under a Daubert analysis. Dr. Moore-Ede admits that his formula is "an example of a *backward* chaining approach where fatigue as a probable cause of an accident is *assumed* and the Expert System CAS attempts to find the supporting evidence to verify this assumption." (Ex. A, *Expert System for Simulating and Predicting Sleep and Alertness Patterns*, Dr. Martin Moore-Ede, et. al., p. 7)(emphasis added). This "backwards" approach is contrary to the scientific method. It is scientifically unreliable to start with a conclusion and attempt to collect facts that somehow support that conclusion or theory. Thus, in this case, Dr. Moore-Ede *assumes* that Alberto's fatigue was a probable cause of the fatal crash and then looks for facts (even though there are none) to support that assumption. To the contrary, the facts show that Mr. Klatt was traveling at least 57 mph in a 45 mph zone when he ran a red light and rear-ended Alberto's car which was traveling at 30 miles per hour. Mr. Klatt never applied his brakes prior to the crash nor did he take any evasive maneuver to avoid contact. The only valid assumption that Dr. Moore-Ede

would be justified in making based on the physical evidence is that Mr. Klatt was asleep at the wheel.

Setting aside the self-described “backward” approach to Dr. Moore-Ede’s formula, the methodology underlying the formula is suspect. According to Dr. Moore-Ede, the CAS formula for predicting sleepiness is based on “complex rules” that “can be tailored” to characteristics of individuals and groups of individuals. (Ex. A, *Expert System for Simulating and Predicting Sleep and Alertness Patterns*, Dr. Martin Moore-Ede, et. al., p. 2). The system also has “a built-in learning module which applies the system rules and algorithms to actual data.” *Id.* Impressive as it may sound, this “system” is something that cannot be independently tested because Dr. Moore-Ede refuses to let it be tested. At his deposition, Dr. Moore-Ede testified as follows:

Q. Where can I get this computer program?

A. The computer program is a proprietary tool of Circadian Technologies and is not available on the open market.

Q. Can we borrow it to test your * * * opinions?

A. We don't take it outside our offices.

Q. Even if we promise that we'll give it right back?

A. No. We don't take it outside our offices. It has high -- it has trade -- trade value, proprietary value to it, and so that we don't let it go outside our own offices.

(Ex. B, Dr. Moore-Ede dep. p. 62). With Dr. Moore-Ede supervising all testing at his own company, it is impossible for the CAS to pass a Daubert challenge. By definition, peer review involves an anonymous review of the CAS by Dr. Moore-Ede’s colleagues. However, Dr. Moore-Ede will not allow independent testing. All testing must be conducted at his company under his supervision. This “testing” is similar to allowing students to grade their own tests.

The data used to create the CAS formula does not seem particularly reliable. Circadian Technologies, Dr. Moore-Ede's own company, collected the data for its "complex" system from the rail and trucking industries from over 10,000 days of operators in actual operating conditions. Information regarding work, rest and sleep schedules of truck drivers and conductors was collected from dispatchers and managers in the trucking and rail industries. (Ex. A, *Expert System for Simulating and Predicting Sleep and Alertness Patterns*, Dr. Martin Moore-Ede, et. al., pp. 5-7). Under Daubert, it is inherently unreliable to use data collected from truck drivers and railroad employees to predict the alertness of a teenage boy on summer vacation.

Another inherent problem with Dr. Moore-Ede's formula is that it uses various factors such as wake-up times, sleep duration and napping capabilities to predict, on average, when people are likely to fall asleep. (Ex. C, *Circadian Alertness Simulator For Fatigue Risk Assessment In Transportation: Application To Reduce Frequency And Severity Of Truck Accidents*, Dr. Martin Moore-Ede, et. al.). However, for Alberto, there is no *actual* data which Dr. Moore-Ede can plug into his formula to form a conclusion regarding Alberto. Everything Dr. Moore-Ede knows about Alberto's sleep habits is only a guess. For example, there is nothing in the record regarding what time Alberto went to sleep or woke up on the day before he died, factors which are essential to Dr. Moore-Ede's formula. However, because he needs some numbers to feed into his system, Dr. Moore-Ede *assumes* that Alberto went to bed at 9:00 p.m. and woke up twelve hours later at approximately 9:00 a.m. He bases this opinion on: a) testimony from Alberto's mother, Maria, that Alberto (and two siblings) *usually* "went to bed" at about 9:00 p.m. and slept until about 9:00 a.m. (although she was never home at that time – she was at work); and b) Maria Davila's failure to indicate whether Alberto took a nap the day he

died (although she was not asked and would not have known anyway). Tellingly, though, Dr. Moore-Ede testified that Alberto's sleep pattern would be unusual for an 18-year old boy. He testified:

[I]n your experience, it's realistic that an 18 year old college kid would go to bed at nine o'clock at night, wake up at nine o'clock in the morning every day during the summer, that fits within your -- what would be your gut check test, right?

* * *

THE WITNESS: No. It's an unusual pattern.

(Ex. B, Dr. Moore-Ede dep. p. 88).

An expert witness may not guess or state an opinion which is based merely on speculation or conjecture. Henderson v. Sheahan, 196 F. 3d 839 (7th Cir. 1999). In the absence of *any* evidence in the record at this time from the day (and preceding week) in question as to Alberto's sleep and nap times, Dr. Moore-Ede's opinions are mere speculation and are nothing more than a guess. When all of the speculative information in this case is plugged into the CAS formula and then "tailored" according to the system's rules and algorithms, the resulting information is completely unreliable. Dr. Moore-Ede's CAS system does not assist the trier of fact because it is based on generalities and speculation, not the facts of this particular case.

B. Daubert Challenge To Dr. Moore-Ede's Blood Alcohol Equivalency Opinion

Dr. Moore-Ede cites various studies which compare sleepiness and the effects of alcohol to opine that Alberto (who had no alcoholic beverages on the night in question and did not drink alcohol at all) had a fatigue impairment level equivalent to a blood alcohol content of .075, "just slightly below the legal .08 blood alcohol limit in most states." (Ex. D, Dr. Moore-Ede report,

p.21). The flaw with Dr. Moore-Ede's reliance on the studies is that they are not scientifically reliable and they do not assist the trier of fact in understanding the issues in this particular case. Therefore, they do not pass muster under a Daubert analysis.

As to the first prong of the Daubert analysis, the reliability of the studies to which Dr. Moore-Ede cites is suspect. The study conducted by Arnedt et. al. concludes that wakefulness can produce decrements in the ability to maintain speed and road position as serious as those found at the legal limits of alcohol consumption. (Ex. E, *How Do Prolonged Wakefulness and Alcohol Compare In The Decrements They Produce On A Simulated Driving Task?*, Arnedt, et. al, 2000). The salient flaw with the study, however, is that it does not consider the one issue which Dr. Moore-Ede claims is essential to any evaluation of sleepiness – circadian phase. (“An important issue not considered in the comparison of prolonged wakefulness and alcohol is circadian influence on performance.” Id. at 343.) Circadian influence, as described by Dr. Moore-Ede, is an individual's pattern of sleepiness (i.e., body clock) in a twenty-four hour period. (Ex. D, Dr. Moore-Ede report, p. 5). Dr. Moore-Ede offers opinions regarding Alberto's level of fatigue based on the circadian phase that he has “calculated” for Alberto. Arnedt's study, though, has eliminated the all-important factor of circadian phase because the results would have been confounded by the volunteers' time-of-day variations. Instead, the study only considers the health of the subjects, whether they smoked cigarettes, whether they had regular sleeping schedules, whether they were extreme morning or evening types, and whether they used alcohol. Given Dr. Moore-Ede's opinion that circadian phase is a salient factor to consider when comparing one's sleepiness to blood alcohol content, and given that his “complex” CAS formula relies upon circadian phase as one of its cornerstones, Arnedt's study that eliminates this factor

altogether is suspect as to its scientific reliability and applicability to this case.

Another study relied upon by Dr. Moore-Ede is Williamson's "*Moderate Sleep Deprivation Produces Impairments in Cognitive and Motor Performance Equivalent to Legally Prescribed Levels of Alcohol Intoxication*." (Ex. F, *Occup. Environ. Med.*, June 2000, Williamson, A.M., et. al.). This study is also scientifically unreliable and does not apply to this case. Like the Arnedt study, Williamson's study does not consider the role of circadian phase. ("[T]his study has not directly considered the role of circadian effects." *Id.* at 654). Williamson admits that his study is not scientifically reliable by acknowledging that "[F]urther research is needed to clarify the relative effects of sleep deprivation and circadian influences and how to measure them against the alcohol consumption benchmark." *Id.* at 654. The circadian factor was eliminated from the study because different biological clocks cause people to operate better (or worse) at different times of day. Even though the Arnedt and Williamson studies (and others) exist, their scientific reliability is highly suspect because they eliminate the factor which Dr. Moore-Ede claims is essential to any fatigue analysis.

As to the second prong of the Daubert analysis, the court must determine whether Dr. Moore-Ede's testimony comparing blood alcohol content to fatigue level would assist the trier of fact in understanding the evidence. A simple analysis demonstrates that it would not. First, Alberto did not consume any alcohol on the night in question so any testimony about blood alcohol content is irrelevant and misleading. Second the studies upon which Dr. Moore-Ede relies don't apply here because they have eliminated real life factors (in addition to circadian phase) that are present in this case. Thus, any comparison of Alberto's sleepiness to a fictional blood alcohol content is baseless.

The studies cited by Dr. Moore-Ede have eliminated two important factors that are present in this case and that affect a driver's ability to stay awake – other traffic on the road and decision-making by the driver. (“[D]rivers were not exposed to other traffic or the necessity to make complex decisions.” Ex. E, p. 343). Here, Alberto got in his car at Denny's which is located in a high volume traffic area with multiple lanes of traffic by Gurnee Mills Shopping Mall and the Great America Amusement Park. When he reached the intersection of Stearns School Road and Route 41, Alberto negotiated the turn and headed north on Route 41 in the left lane of traffic. It would be impossible for Alberto to have fallen asleep at the wheel with these significant traffic factors keeping him awake.¹ Put another way, if the subjects of Arnedt's study were exposed to common conditions of driving that are clearly present in this case (such as other traffic or making various turns), they likely would have performed at a higher level of responsiveness because they would not have been lulled to sleep. Without these important factors which *are* present in Alberto's case, the studies upon which Dr. Moore-Ede relies are far from reliable and will not assist the trier of fact.

C. Prejudicial Effect Of Dr. Moore-Ede's Blood Alcohol Equivalency Opinion

Under Federal Rule of Evidence 403, a trial court should exclude evidence “if its probative value is substantially outweighed by the danger of unfair prejudice.” In this case, as part of the autopsy, Alberto's system was checked for drugs or alcohol. He had no drugs or alcohol in his system. In fact, he did not drink or take drugs. However, based on suspect studies

¹Indeed, according to Michael Rogers, the defendants' reconstruction expert, in order for Mr. Klatt to have a green light, Alberto would have had to hit his traffic sensor second (after Mr. Klatt) and then negotiate an almost impossible turn in record time to beat Mr. Klatt to the point of impact. (Ex. H, Michael Rogers dep. pp. 109-110).

and Dr. Moore-Ede's secret CAS formula, Dr. Moore-Ede opines that Alberto's fatigue impairment, when expressed as a blood alcohol equivalency, was "just slightly below the legal .08 blood alcohol limit in most states." (Ex. D, Dr. Moore-Ede report, p. 21). Nothing could be more prejudicial than allowing Dr. Moore-Ede to opine that Alberto drove his car like he was drunk even though Alberto had no drugs or alcohol in his system. Regardless of other evidence and limiting instructions by the court, the jury may conclude that the testing for alcohol must have been incorrect. The jury may conclude Alberto was under the influence of alcohol at the time of the collision. This testimony is inflammatory for other reasons as well. There is a clear bias against drunk drivers. Thus, if Dr. Moore-Ede is permitted to equate being tired with being intoxicated, the prejudice will be too great to overcome. The probative value of Dr. Moore-Ede's fatigue/intoxication analysis is far outweighed by the prejudicial effect it will undoubtedly have on the jury.

D. Caffeine

Dr. Moore-Ede claims that "it is unlikely that [Alberto] had a caffeinated beverage in the hours prior to the accident." (Ex. D, Dr. Moore-Ede report, p. 15). He bases this conclusion on nothing more than Alberto's penchant for drinking water when he played soccer. Dr. Moore-Ede believes that if Alberto actually drank something other than water at the Denny's restaurant shortly before his death, he may have consumed water, juice or soda, which was likely not caffeinated because "most beverages are not caffeinated." (Ex. D, Dr. Moore-Ede report, p. 15). As noted above, an expert witness may not guess or state an opinion which is based merely on speculation or conjecture. Since Defendants failed to ask Alejandro Flores what they had to drink at the Denny's, there is no evidence here as to what caffeinated (or non-caffeinated)

beverages Alberto drank before the crash. Thus, Dr. Moore-Ede should be barred from offering unsubstantiated guesses as to what Alberto drank in the hours before his death.

E. Temperature in Alberto's Car

Dr. Moore-Ede opines that certain environmental factors (sound, light, temperature, etc.) affect a driver's fatigue factor. In this regard, he admits that he has *no idea* what the temperature was in Alberto's car at the time of the crash. In his report, Dr. Moore-Ede states: "We do not know what the temperature in the car was." (Ex. D, Dr. Moore-Ede report, p. 16). Despite his lack of knowledge, Dr. Moore-Ede opines that the temperature would not have helped to keep Alberto awake because "in his experience, people set the temperature to a comfort level which would not add any extra stimuli that would increase alertness." (Ex. D, Dr. Moore-Ede report, p. 16). It is clear that Dr. Moore-Ede knows nothing about the temperature in the car and is only *guessing* as to what the temperature was at the time of the crash (based on his own experience). Since an expert witness may not state an opinion based on speculation, this testimony should clearly be barred.

F. "Something Unusual"

There is no evidence that Alberto Davila's car stalled on the roadway at any time.² However, Dr. Moore-Ede claims that a "fatigue-impaired state" "*could have* resulted in Alberto Davila stalling his car." (Ex. D, Dr. Moore-Ede report, p. 23)(emphasis added). To support this ludicrous hypothetical, Dr. Moore-Ede relies on eye-witness Greg Howard's account that he saw "something unusual" as he drove by. (Ex. D, Dr. Moore-Ede report, p. 23). Importantly, though,

²Alberto's car could not have stalled since all expert agree it was traveling about 30 miles per hour when it was overrun by Mr. Klatt's truck.

Mr. Howard has no idea what, if anything, he saw. He testified as follows:

Q. When you first saw this something, did you know what it was?

A. I don't think so.

(Ex. G, Greg Howard dep. p. 31). Mr. Howard believes he saw something moving but is not sure what it was. He does not know in which direction this unidentified object was moving. (Ex. G, Greg Howard dep. p. 31). Moreover, Mr. Howard does not remember where the object was located or its color. (Ex. G, Greg Howard dep. pp. 31-32).

Dr. Moore-Ede's opinion that the "unusual" object seen by Mr. Howard must have been Alberto's car stalled on the road is clearly nothing more than conjecture. It is not based on any facts in the record. It is axiomatic that an expert's opinion may not be based on speculation or conjecture and therefore, Dr. Moore-Ede's opinion that the Plaintiff's car was stalled on the side of the road is not admissible. Further, the characterization of what Mr. Howard saw as being "unusual" is highly prejudicial. There is no information whatsoever about this mystery object that allegedly caught Mr. Howard's eye. This object could have been an animal, trash or a myriad of other things, including Defendant's truck. Most likely, it was the Honda crashing into the cement retaining wall after being struck by the truck. Dr. Moore-Ede cannot say to a reasonable degree of scientific certainty that the "unusual" object seen by Mr. Howard was Alberto's car stalled on the road before impact. Given the total lack of evidence that Alberto's car was stalled or parked, the probative value of equating "something unusual" with a stalled car is far outweighed by its prejudicial effect.

G. Credibility of Witnesses

“An expert cannot testify as to credibility issues. Rather, credibility questions are within the province of the trier of fact.” Goodwin v. MTD Products, Inc., 232 F.3d 600 (7th Cir. 2000). Here, Dr. Moore-Ede offers an opinion that “Mr. Klatt’s recollection of the events is significantly more credible than that of Mr. Flores” (Ex. D, Dr. Moore-Ede report, p. 44). It is irrelevant whom Dr. Moore-Ede believes in this case and any such testimony should be barred.

H. “Confusing” Testimony

Dr. Moore-Ede does not understand what Alejandro Flores says about the crash. This is evident because he characterizes Mr. Flores’ testimony as “confusing.” (Ex. D, Dr. Moore-Ede report, p.31). Whether the testimony is confusing is for the jury to decide as the trier of fact. Thus, Dr. Moore-Ede should be barred from offering the opinion that any testimony was “confusing.”

I. Teenage Male Driver Versus Fifty-Eight Year Old Male Truck Driver

Dr. Moore-Ede also opines that *statistically*, Alberto Davila was more likely to be at fault for this fatal crash than Mr. Klatt. In support of this opinion, Dr. Moore-Ede cites the following statistics:

1. “The accident rate per 100 million miles for teenage drivers driving at night is far greater than older drivers.” (Ex. D, Dr. Moore-Ede report, p. 40).
2. An 18 year old driver driving at night is approximately 3.2 times more likely to be involved in a fatal crash than a 55-59 year old driver. (Id.)
3. “The presence of passengers in the car significantly increases the probability that a teenage driver will have a traffic accident, whereas this passenger effect does not exist with older drivers.” (Id.)
4. An 18 year old driver with two passengers in the car is 4.5 times more likely to

have a crash than a 30-59 year old driver with no passengers. (Id. at 41)

5. An 18 year old male driver has two times greater probability of a fatal traffic accident than an 18 year old female driver. (Id. at 42)
6. “The accident rate per 10,000 license drivers for a teenage driver driving on a Saturday is greater than that of an older driver driving on the same day.” (Id.)

The flaw with the statistics cited by Dr. Moore-Ede is that they are irrelevant to this particular case. Relevant evidence has “the tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.” People v. Hope, 168 Ill.2d 1, 658 N.E.2d 391 (1995). The statistics cited by Dr. Moore-Ede do not explain why Mr. Klatt was traveling 57 mph in a 45 mph zone. The statistics do not explain why he ran a red light. The statistics do not explain why he never hit his brakes before rear-ending Alberto’s car. The only relevant statistic here is that Mr. Klatt’s driving made it highly likely that he would cause a collision and kill someone. Dr. Moore-Ede should not be able to cite to statistical reports merely because Mr. Klatt happened to rear-end a teenage, male driver. Regardless of what the general statistics demonstrate, the jury must decide this case based on the facts of this case.

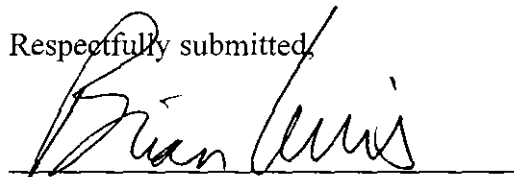
Statistical evidence is akin to character evidence. “Evidence of a person’s character or trait of character is not admissible for the purpose of proving action in conformity therewith on a particular occasion.” FRE 404(a). The advisory committee notes for Rule 404 state:

Character evidence is of slight probative value and may be very prejudicial. It tends to distract the trier of fact from the main question of *what actually happened* on the particular occasion. It subtly permits the trier of fact to reward the good man and to punish the bad man because of their respective characters despite what the evidence in the case shows actually happened.

(FRE 404, Advisory Committee Note, proposed 1972)(emphasis added). To provide the jury with general statistics about teenage drivers that have nothing to do with the facts of this case is an obvious attempt by Defendant to distract the jury from the main question of what actually happened here. Dr. Moore-Ede should be barred from citing general statistics because those statistics, like character evidence, are irrelevant, have no probative value, and are prejudicial.

WHEREFORE, Plaintiff requests that this Court enter an order barring the testimony of Dr. Martin Moore-Ede. If this Court finds that only certain of his opinions are inadmissible, Plaintiffs request that Defendants, their attorneys and all witnesses be advised not to mention, suggest, interrogate or voluntarily answer or attempt to convey to the jury either directly or indirectly during jury selection, testimony or any argument the matters excluded by this Court.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brian Lewis", written over a horizontal line.

Brian J. Lewis, One of
Plaintiffs' Attorneys


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CERTIFICATE OF SERVICE

The undersigned attorney certifies that he caused a copy of the foregoing DAVILA PLAINTIFFS' MOTION IN *LIMINE* TO BAR TESTIMONY OF DR. MARTIN MOORE-EDE to be served by personal delivery on the attorney listed below on September 5, 2003:

Marshall Seeder, Esq.
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Brian J. Lewis

**SEE CASE
FILE FOR
EXHIBITS**